

CLAIMS

What Is Claimed Is:

1. A high torque turbine rotor for a hand held or spindle
5 mounted pneumatic tool, comprising:

a rotor body having an inlet attachable to a high
pressure air source, including:

a first annular chamber;

a second annular chamber; and

10 a common inner wall, wherein said first annular
chamber and said second annular chamber are separated by said
common inner wall;

said rotor body being cylindrical and including a
plurality of tangential peripheral nozzles in fluid
15 communication with said housing first chamber and said housing
second chamber for expelling high pressure air to rotate said
rotor body;

said inner wall including a central bore for receiving
and attachment to a drive shaft.

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2. The high torque turbine rotor of claim 1, wherein said
rotor further comprises:

an RPM governor in said first chamber and in said second chamber.

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3. The high torque turbine rotor of claim 2, wherein said RPM governor includes:

a front wall;

at least one spiraling wall barrier extending from the
30 outer portion of each annular chamber through a valve o-ring of the rotor body;

a valve o-ring within each annular chamber;

an annular perforated barrier within each annular chamber extending outward from the valve o-ring, and

35 a back wall.

4. The high torque turbine rotor of claim 3, wherein each perforated barrier is integral with the rotor body of the rotor.

40 5. The high torque turbine rotor of claim 1, wherein four arcuate chambers radiate from each annular chamber.

6. The high torque turbine rotor of claim 1, wherein the front wall and the front interior surface of the inner wall are
45 grooved for fitting a first perforated barrier, and the back

wall and the back interior surface of the inner wall are grooved for fitting a second perforated barrier.

7. The high torque turbine rotor of claim 3, wherein the
50 valve o-ring is resilient rubber.

8. The high torque turbine rotor of claim 1, wherein the common wall comprises:

one or more additional annular chambers and additional
55 arcuate chambers located between the two annular chambers and the two arcuate chambers which terminate openings in the circumference of the rotor body, and an additional annular perforated barrier is located within each additional annular chamber located radially outward from an additional valve o-
60 ring, and at least one additional valve o-ring is located radially inward from the additional annular perforated barrier.

9. The high torque turbine rotor of claim 1, wherein the inner wall comprises a narrow waist.

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10. The high torque turbine rotor of claim 3, wherein the components except for the valve o-ring are made of plastic.

11. The high torque turbine rotor of claim 1, wherein the
70 front wall and the back wall are releasably attached to the
inner wall.

12. The high torque turbine rotor of claim 11, wherein the
front wall and the back wall are attached to the inner wall by
75 frictional force.

13. The high torque turbine rotor of claim 1, wherein the
first nozzles are aligned with the second nozzles.

14. A rotor body to a high torque turbine rotor,
80 comprising:

a rotor body including a central bore, and

said rotor body having a cylindrical outer wall and a
central inner wall;

85 a front surface, including at least one first annular
channel ending in at least one first arcuate channel ending in
at least one first circumferential opening; and

a back surface, including at least one second annular
channel ending in at least one second arcuate channel ending in
90 at least one second circumferential opening.

15. The rotor body of claim 14, further comprising a first groove in the first annular channel for fitting a first perforated barrier, and a second groove in the second annular
95 channel for fitting a second perforated barrier.

16. The rotor body of claim 14, further comprising:
the first perforated barrier;
the second perforated barrier;
100 a first valve o-ring located between the first perforated barrier and the central bore; and
a second valve o-ring located between the second perforated barrier and the central bore.

105 17. A hand held pneumatic tool, comprising:
a high torque turbine rotor body located circumferentially around the primary shaft, wherein the turbine rotor body includes:
a front wall adapted for fitting with the inner wall,
110 including:
a central bore;
an inner wall adapted for fitting with the front wall and a back wall, including:
at least two annular chambers;

115 at least one arcuate chamber radiating from the
outer portion of each annular chamber through a valve o-ring in
the rotor body;

a valve o-ring within each annular chamber;

an annular perforated barrier within each annular
120 chamber located radially outward from the valve o-ring, and

a central bore; and

a back wall adapted for fitting with the inner wall,
including:

a central bore.

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18. A hand held pneumatic tool, comprising:

a high torque turbine rotor having an outer wall and
an axis of rotation, means for mounting said turbine rotor for
rotation about said axis of rotation on a drive shaft, said
130 turbine rotor having an inner wall and at least two high
pressure air receiving chambers, means for directing
pressurized air into the two chambers, said turbine rotor
having air passing in each chamber, said air passage ending in
tangential nozzles in said outer wall of the rotor, said
135 nozzles directing a pressurized fluid therefrom to impart
rotation to said turbine rotor.

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19. The hand held pneumatic tool of claim 18, wherein
said rotor body includes a chamber wall separating said two
140 chambers.

20. The hand held pneumatic tool of claim 18, further
comprising a resilient sealing means located in each said
annular chamber means;

145 said resilient sealing means being movable outwardly
by centrifugal force to restrict pressurized flow through said
perforated barrier means, allowing pressurized fluid to flow
unrestricted by said resilient sealing means until said
resilient sealing means has been moved outwardly by centrifugal
150 force to restrict pressurized flow through the perforated
barrier means.

21. A high torque turbine rotor for a hand held or spindle
mounted pneumatic tool, comprising:

155 means for generating torque with a cylindrical body
having an inlet attachable to a high pressure air source,
including:

means for generating torque in a first chamber of said
body;

160 means for generating torque in a second chamber of
said body;

means for separating said first chamber from said second chamber; and

means connecting said torque generating means to a
165 shaft.

22. The high torque turbine rotor of claim 21, wherein said rotor further comprises means for governing the revolutions per minute of the rotor disposed within said first means for
170 generating torque and said second means for generating torque.

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